

REMARKS

Reconsideration and withdrawal of the rejections set forth in the Office Action dated January 12, 2004 are respectfully requested.

I. Rejections under 35 U.S.C. § 112, first paragraph

Claims 1, 14, and 32 have been amended to include sufficient antecedent basis. In claim 1, the phrase "the added participant", which appears in the last line of the claim, has been changed to "the seeking participant". In addition, "a seeking participant" precedes "the seeking participant" in an earlier line of claim 1, providing sufficient antecedent basis. In claim 32, the phrase "the added participant", which appears in the last line of the claim, has been changed to "a seeking participant". In claim 14, the phrase "the added node", which appears in the last line of the claim, has been changed to "the seeking node". In addition, "a seeking node" precedes "the seeking node" in an earlier line of claim 14, providing sufficient antecedent basis.

II. Rejections under 35 U.S.C. § 112, second paragraph

Claim 6 has been amended to render the claim definite. The term "approximately proportional" has been changed to "proportional". Claim 10 has also been amended to render the claim definite. The term "approximately twice the diameter" has been changed to "twice the diameter". Claim 37 has been amended to render the claim definite. The term "approximately twice a diameter of the network" has been changed to "twice a diameter of the network".

III. Rejections under 35 U.S.C. § 102

A. The Applied Art

U.S. Patent No. 6,603,742 B1 to Steele, Jr. et al. (*Steele, Jr. et al.*) is directed to a technique for reconfiguring networks while it remains operational. *Steele, Jr. et al.* discloses a method for adding nodes to a network with minimal recabling. Column 3, lines 2-5. An interim routing table is used to route traffic around the part of the network affected by the adding of a

node. Column 11, lines 40-45. Each node in the network can connect to five other nodes. Column 4, lines 36-39, Column 4, lines 43-44. To add a node to a network, two links between two pairs of existing nodes are removed and five links are added to connect the new node to the network. Column 11, lines 25-31. For example, when upgrading from 7 to 8 nodes, the network administrator removes two links, 3-1 and 5-2, and adds five links, 7-1, 7-2, 7-3, 7-5, and 7-6. Column 12, lines 45-48.

B. Analysis

Distinctions between claim 1 and *Steele, Jr. et al.* will first be discussed, followed by distinctions between *Steele, Jr. et al.* and the remaining dependent claims.

As noted above, *Steele, Jr. et al.* discloses a technique for reconfiguring networks. Such a technique includes steps for disconnecting the participants of a pair from each other and connecting each participant to a seeking participant but does not include a step for identifying a pair of participants of the network that are fully connected. Column 12, lines 45-49. *Steele, Jr. et al.* fails to disclose a method for identifying a pair of participants of the network that are fully connected.

In contrast, claim 1 as amended includes the limitation of identifying a pair of participants of the network that are connected. For at least this reason, the applicant believes that claim 1 is patentable over *Steele, Jr. et al.*

The invention discloses an identification method in which a seeking participant contacts a fully connected portal computer. The portal computer directs the identification of a number of (for example four), randomly selected neighboring participants to which the seeking participant is to connect. *Steele, Jr. et al.* fails to disclose a portal computer that directs the identification of viable neighboring participants to which the seeking participant is to connect. Claim 1 has been amended to recite, among other limitations, the use of a portal computer for the identifying of "a

number of selected neighboring participants to which the seeking participant is to connect." *Steele, Jr. et al.* fails to disclose such a method for identifying neighboring participants for a seeking participant to connect to. For at least this reason, claim 1 is patentable over *Steele, Jr. et al.*

Further, the claimed does not make use of routing tables. *Steele, Jr. et al.* fails to disclose a non-table based routing method. Claim 1 has been amended to recite, among other limitations, "a computer-based, non-routing table based, non-switch based method for adding a participant to a network of participants". For at least this reason, claim 1 is patentable over *Steele, Jr. et al.*

Claim 2 discloses a connection scheme where "each participant is connected to 4 participants". *Steele, Jr. et al.* fails to disclose a connection scheme in which each participant is connected to 4 participants. Instead, *Steele, Jr. et al.* discloses a connection scheme in which each participant is connected to 5 other participants. Column 7, lines 14-33. For at least this reason, claim 2 is patentable over *Steele, Jr. et al.*

Anticipation a claim under 35 U.S.C. § 102 requires that the cited reference must teach every element of the claim.¹ *Steele, Jr. et al.* fails to disclose every limitation recited in claim 1. Since claim 1 is allowable, based on at least the above reasons, the claims that depend on claim 1 are likewise allowable.

¹ MPEP section 2131, p. 70 (Feb. 2003, Rev. 1). See also, *Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1462 (Bd. Pat. App. & Interf. 1990) (to establish a *prima facie* case of anticipation, the Examiner must identify where "each and every facet of the claimed invention is disclosed in the applied reference."); *Glaverbel Société Anonyme v. Northlake Mktg. & Supply, Inc.*, 45 F.3d 1550, 1554 (Fed. Cir. 1995) (anticipation requires that each claim element must be identical to a corresponding element in the applied reference); *Atlas Powder Co. v. E.I. duPont De Nemours*, 750 F.2d 1569, 1574 (1984) (the failure to mention "a claimed element (in) a prior art reference is enough to negate anticipation by that reference").

IV. Rejections under 35 U.S.C. § 103, first paragraph

A. The Applied Art

A Flood Routing Method for Data Networks by Cho (*Cho*) is directed to a routing algorithm based on a flooding technique. *Cho* discloses a method in which flooding is used to find an optimal route to forward messages through. Flooding refers to a data broadcast technique that sends the duplicate of a packet to all neighboring nodes in a network. In *Cho*, flooding is not used to send the message, but is used to locate the optimal route for the message to be sent through. The method entails flooding a very short packet to explore an optimal route for the transmission of the message and to establish the data path via the selected route. Each node connected to the broadcast channel does not receive all messages that are broadcast on the broadcast channel. When a node receives a message, it does **not** forward that message to all of its neighboring nodes using flooding. In addition, *Cho* fails to disclose a method for rearranging a sequence of messages that are received out of order.

B. Analysis

As noted above, *Steele, Jr. et al.* discloses a method for adding nodes to a network with minimal recabling. *Steele, Jr. et al.* fails to disclose a method in which "each participant forwards broadcast messages that it receives to all of its neighbor participants". Claim 32 has been amended to clarify the language of previously pending claim 32. *Cho* discloses a method in which flooding is used to find an optimal route to forward messages through. *Cho* fails to disclose the use of flooding to forward messages. In *Cho*, flooding is used only to find an optimal route for data transmission and is not used to actually forward messages. *Cho* fails to disclose a system in which "each participant forwards broadcast messages that it receives to all of its neighbor participants". In *Cho*, each participant forwards messages only to a destination node once the optimal route has been selected. *Cho* fails to disclose a system in which "each

participant connected to the broadcast channel receives all messages that are broadcast on the network". In addition, Cho fails to disclose a method for addressing a sequence of messages that are received out of order in which "messages are numbered sequentially so that messages received out of order are queued and rearranged to be in order".

As explained below, there is no incentive or teaching to combine *Steele, Jr. et al.* and *Cho*. However, even if they were combined, neither *Steele, Jr. et al.* nor *Cho* teach or suggest the use of flooding to send messages to all nodes connected to a broadcast channel. In addition, neither *Steele, Jr. et al.* nor *Cho* teach or suggest the sequential numbering of messages to rearrange a sequence of messages that are received out of order. The invention of claim 32 includes forwarding messages to all neighboring nodes and numbering each message sequentially so that "messages received out of order are queued and rearranged to be in order", which are not disclosed in either *Steele, Jr. et al.* or *Cho*. For at least this reason, the applicant believes that claim 32 is patentable over the combination of *Steele, Jr. et al.* and *Cho*.

The independent claims are allowable not only because they recite limitations not found in the references (even if combined), but for at least the following additional reasons. For example, there is no motivation to combine the various references as suggested in the Office Action. According to the Manual of Patent Examining Procedure ("MPEP") and controlling case law, the motivation to combine references cannot be based on mere common knowledge and common sense as to benefits that would result from such a combination, but instead must be based on specific teachings in the prior art, such as a specific suggestion in a prior art reference. For example, last year the Federal Circuit rejected an argument by the PTO's Board of Patent Appeals and Interferences that the ability to combine the teachings of two prior art references to produce beneficial results was sufficient motivation to combine them, and thus overturned the

Board's finding of obviousness because of the failure to provide a specific motivation in the prior art to combine the two references.² The MPEP provides similar instructions.³

Conversely, and in a manner similar to that rejected by the Federal Circuit, the present Office Action lacks any description of a motivation to combine the references. Thus, if the current rejection is maintained, the applicant's representative requests that the Examiner explain with the required specificity where a suggestion or motivation in the references for so combining the references may be found.⁴

Steele et al. deals with a method for adding nodes to a network while *Cho* deals with finding an optimal route to forward messages in a network. The addition of nodes to a network represents a completely separate process from the forwarding of messages in a network. *Steele et al.* contains no specific teachings that would suggest combining *Steele et al.* with *Cho*. In other words, *Steele et al.* contains no specific teachings that would suggest finding an optimal route to forward messages in a network.

One may not use the application as a blueprint to pick and choose teachings from various prior art references to construct the claimed invention ("impermissible hindsight reconstruction").⁵ Assuming, for argument's sake, that it would be obvious to combine the teachings of *Steele et al.* with *Cho*, then *Steele et al.* would have done so because it would have

² In re Sang-Su Lee, 277 F.3d 1338, 1341-1343 (Fed. Cir. 2002).

³ Manual of Patent Examining Procedure, Section 2143 (noting that "the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure," citing in re Vaeck, 947 F.2d 488 (Fed. Cir. 1991)).

⁴ See, MPEP Section 2144.03.

⁵ See, e.g., In re Gorman, 933 F.2d 982,987 (Fed. Cir. 1991), ("One cannot use hindsight construction to pick and choose between isolated disclosures in the prior art to deprecate the claimed invention.").

provided at least some of the advantages of the presently claimed invention. *Steele et al.*'s failure to employ the teachings cited in *Cho* is persuasive proof that the combination recited in claim 32 is unobvious. For at least this reason, the applicant believes that claim 32 is patentable over the combination of *Steele et al.* and *Cho*.

Claim 33 discloses a connection scheme where "each participant is connected to 4 participants". *Steele, Jr. et al.* fails to disclose a connection scheme in which each participant is connected to 4 participants. Instead, *Steele, Jr. et al.* discloses a connection scheme in which each participant is connected to 5 other participants. Column 7, lines 14-33. For at least this reason, claim 33 is patentable over *Steele, Jr. et al.*

Since claim 32 is allowable, based on at least the above reasons, the claims that depend on claim 32 are likewise allowable. Thus, for at least this reason, claim 33 is patentable over the combination of *Steele, Jr. et al.* and *Cho*.

V. Rejections under 35 U.S.C. § 103, second paragraph

A. The Applied Art

U.S. Patent No. 6,490,247 B1 to Gilbert et al. (*Gilbert et al.*) is directed to a ring-ordered, dynamically reconfigurable computer network utilizing an existing communications system. *Gilbert et al.* discloses a method for adding a node to a network using a switching mechanism in which the nodes are ordered in a ring-like configuration as opposed to a hypercube configuration. Column 3, lines 28-35. The first step in adding a seeking node to the network consists of the seeking contacting a portal node that is fully connected to the network. Column 6, lines 31-33. The portal node that is contacted provides information regarding a neighboring node that is adjacent to the seeking node; the selection of the neighboring node is not random. Column 6, lines 40-42. The seeking node then contacts the neighboring node to request a connection. Column 6, lines 57-59. The portal node provides the relevant information regarding

the node that is adjacent to the neighboring node that is adjacent to the seeking node but does not request a connection.

U.S. Patent No. 6,553,020 B1 to Hughes et al. (*Hughes et al.*) is directed to a network for interconnecting nodes for communication across the network. *Hughes et al.* fails to disclose a system where a portal computer randomly selects four nodes to serve as neighboring nodes to the seeking node. *Hughes et al.* also fails to disclose a system in which the portal computer sends an edge connection request to the neighboring nodes.

B. Analysis

As noted above, *Gilbert et al.* discloses a method for adding a node to a network using a switching mechanism. *Gilbert et al.* fails to disclose a method in which a portal computer seeks "a number of randomly selected neighboring participants to which the seeking participant is to connect". In *Gilbert et al.*, the selection of the neighboring nodes is not random. Column 6, lines 40-49. Figure 6 of *Gilbert et al.* reveals that node 100 selects nodes 10 and 16; the selection of nodes 10 and 16 is not random since they are purposely adjacent to one another and since node 10 provides node 100 with information regarding the node adjacent to it, node 16. Column 6, lines 42-46. *Gilbert et al.* fails to disclose a method in which a portal computer "sends an edge connection request to a number of randomly selected neighboring participants to which the seeking participant is to connect". In *Gilbert et al.*, the seeking node, not the portal node, contacts the neighboring participants to which the seeking participant is to connect. Column 6, lines 57-61. *Gilbert et al.* fails to disclose a "non-switch based method for adding a participant to a network of participants". Column 3, lines 8-11. *Gilbert et al.* fails to disclose a method in which an additional node contacts "a number of randomly selected neighboring participants". Column 6, lines 30-32. *Hughes et al.* discloses a method in which an additional node contacts four neighboring participants. *Hughes et al.* fails to disclose a method in which a

portal computer seeks "four randomly selected neighboring participants to which the seeking participant is to connect". *Hughes et al.* also fails to disclose a method in which a portal computer "sends an edge connection request to four randomly selected neighboring participants to which the seeking participant is to connect".

As explained below, *Gilbert et al* and *Hughes et al.* would not be combined. However, even if they were combined, neither *Gilbert et al* nor *Hughes et al.* teach or suggest the random selection of neighboring participants. Claim 1 has been amended to recite, among other limitations, a method in which a portal computer seeks "four randomly selected neighboring participants to which the seeking participant is to connect". In other words, the invention of claim 1 includes randomly selecting neighboring participants to which the seeking participant is to connect, which is not disclosed in either *Gilbert et al* or *Hughes et al.* Even if they were combined, neither *Gilbert et al* nor *Hughes et al.* teach or suggest the sending of an edge connection request by the portal computer to the randomly selected neighboring participants to which the seeking participant is to connect. Claim 1 has been amended to recite, among other limitations, a method in which a portal computer "sends an edge connection request to four randomly selected neighboring participants to which the seeking participant is to connect". In other words, the invention of claim 1 includes the portal computer sending an edge connection request to the randomly selected neighboring participants to which the seeking participant is to connect, which is not disclosed in either *Gilbert et al* or *Hughes et al.* For at least these reasons, the applicant believes that claim 1 is patentable over the combination of *Gilbert et al* and *Hughes et al.*

In a similar fashion, claim 14 has been amended to recite, among other limitations, a method in which a portal computer seeks "four randomly selected neighboring nodes to which the seeking node is to connect". In other words, the invention of claim 14 includes randomly

selecting neighboring nodes to which the seeking node is to connect, which is not disclosed in either *Gilbert et al* or *Hughes et al*. Even if they were combined, neither *Gilbert et al* nor *Hughes et al*. teach or suggest the random selection of neighboring nodes. In addition, even if they were combined, neither *Gilbert et al* nor *Hughes et al*. teach or suggest the sending of an edge connection request by the portal computer to the randomly selected neighboring nodes to which the seeking node is to connect. Claim 14 has been amended to recite, among other limitations, a method in which a portal computer "sends an edge connection request to four randomly selected neighboring nodes to which the seeking node is to connect". In other words, the invention of claim 14 includes the portal computer sending an edge connection request to the randomly selected neighboring nodes to which the seeking node is to connect, which is not disclosed in either *Gilbert et al* or *Hughes et al*. For at least these reasons, the applicant believes that claim 14 is patentable over the combination of *Gilbert et al* and *Hughes et al*.

Since claim 1 is allowable, based on at least the above reasons, the claims that depend on claim 1 are likewise allowable. Thus, for at least this reason, claims 2-5, 7, 8, and 11-13 are patentable over the combination of *Gilbert et al* and *Hughes et al*. Since claim 14 is allowable, based on at least the above reasons, the claims that depend on claim 14 are likewise allowable. Thus, for at least this reason, claims 15-17 are patentable over the combination of *Gilbert et al* and *Hughes et al*.

If the current rejection is maintained, the applicant's representative requests that the Examiner explain with the required specificity where a suggestion or motivation in the references for so combining the references may be found.⁶

⁶ See, MPEP Section 2144.03.

Gilbert et al. deals with a method for adding nodes to a network while *Hughes et al.* deals with a network for interconnecting nodes for communication across the network. The addition of nodes to a network represents a completely separate process from the interconnection of nodes in a network. *Hughes et al.* contains no specific teachings that would suggest combining *Hughes et al.* with *Gilbert et al.* In other words, *Hughes et al.* contains no specific teachings that would suggest adding a node to a network.

As is known, one may not use the application as a blueprint to pick and choose teachings from various prior art references to construct the claimed invention ("impermissible hindsight reconstruction").⁷ Assuming, for argument's sake, that it would be obvious to combine the teachings of *Hughes et al.* with *Gilbert et al.*, then *Hughes et al.* would have done so because it would have provided at least some of the advantages of the presently claimed invention. *Hughes et al.*'s failure to employ the teachings cited in *Gilbert et al.* is persuasive proof that the combination is unobvious. For at least this reason, the applicant believes that claims 1 and 14 are patentable over the combination of *Hughes et al.* and *Gilbert et al.*

Since claim 1 is allowable, based on at least the above reasons, the claims that depend on claim 1 are likewise allowable. Thus, for at least this reason, claims 2-5, 7, 8, and 11-13 are patentable over the combination of *Gilbert et al.* and *Hughes et al.* Since claim 14 is allowable, based on at least the above reasons, the claims that depend on claim 14 are likewise allowable. Thus, for at least this reason, claims 15-17 are patentable over the combination of *Gilbert et al.* and *Hughes et al.*

⁷ See, e.g., *In re Gorman*, 933 F.2d 982,987 (Fed. Cir. 1991), ("One cannot use hindsight construction to pick and choose between isolated disclosures in the prior art to deprecate the claimed invention.").

VI. Rejections under 35 U.S.C. § 103, third paragraph

A. The Applied Art

A Flood Routing Method for Data Networks by Cho (*Cho*), U.S. Patent No. 6,490,247 B1 to Gilbert et al. (*Gilbert et al.*), and U.S. Patent No. 6,553,020 B1 to Hughes et al. (*Hughes et al.*) have already been disclosed in the above descriptions of the applied art.

B. Analysis

As noted previously, *Gilbert et al.* discloses a method for adding nodes to a network while *Hughest et al.* discloses a network for interconnecting nodes for communication across the network. The combination of *Gilbert et al.* and *Hughest et al.* fails to disclose a method in which "each participant forwards broadcast messages that it receives to all of its neighbor participants". *Cho* discloses a method in which flooding is used to find an optimal route to forward messages through. *Cho* fails to disclose the use of flooding to forward messages. In *Cho*, flooding is used only to find an optimal route for data transmission and is not used to actually forward messages. *Cho* fails to disclose a system in which "each participant forwards broadcast messages that it receives to all of its neighbor participants". In *Cho*, each participant forwards messages only to a destination node once the optimal route has been selected. *Cho* fails to disclose a system in which "each participant connected to the broadcast channel receives all messages that are broadcast on the network". In addition, *Cho* fails to disclose a method for addressing a sequence of messages that are received out of order in which "messages are numbered sequentially so that messages received out of order are queued and rearranged to be in order". Claim 32 has been amended to clarify the inherent language of previously pending claim 32. As explained below, *Gilbert et al.*, *Hughes et al.*, and *Cho* would not be combined. However, even if they were combined, *Gilbert et al.*, *Hughes et al.*, and *Cho* fail to teach or suggest the use of flooding to send messages to all nodes connected to a broadcast channel. In addition, *Gilbert et al.*, *Hughes*

et al., and *Cho* fail to teach or suggest the sequential numbering of messages to rearrange a sequence of messages that are received out of order. The invention of claim 32 includes forwarding messages to all neighboring nodes and numbering each message sequentially so that "messages received out of order are queued and rearranged to be in order", which are not disclosed in *Gilbert et al.*, *Hughes et al.*, or *Cho*. For at least these reasons, the applicant believes that claim 32 is patentable over the combination of *Gilbert et al.*, *Hughes et al.*, and *Cho*.

Since claim 32 is allowable, based on at least the above reasons, the claims that depend on claim 32 are likewise allowable. Thus, for at least this reason, claims 33-36, 38, and 39 are patentable over the combination of *Gilbert et al.*, *Hughes et al.*, and *Cho*.

Gilbert et al. deals with a method for adding nodes to a network, *Hughes et al.* deals with a network for interconnecting nodes for communication, and *Cho* deals with finding an optimal route to forward messages in a network. These three prior art references represent separate, distinct processes. The combination of *Gilbert et al.* and *Hughes et al.* contains no specific teachings that would suggest combining *Gilbert et al.* and *Hughes et al.* with *Cho*. In other words, the combination of *Gilbert et al.* and *Hughes et al.* contains no specific teachings that would suggest finding an optimal route to forward messages in a network.

Assuming, for argument's sake, that it would be obvious to combine the teachings of *Gilbert et al.* and *Hughes et al.* with *Cho*, then *Gilbert et al.* and *Hughes et al.* would have done so because it would have provided at least some of the advantages of the presently claimed invention. The failure of *Gilbert et al.* and *Hughes et al.* to employ the teachings cited in *Cho* is persuasive proof that the combination recited in claim 32 is unobvious. For at least this reason, the applicant believes that claim 32 is patentable over the combination of *Gilbert et al.* and *Hughes et al.* in view of *Cho*.


Since claim 32 is allowable, based on at least the above reasons, the claims that depend on claim 32 are likewise allowable. Thus, for at least this reason, claims 33-36, 38, and 39 are patentable over the combination of *Gilbert et al*, *Hughes et al.*, and *Cho*.

VII. Conclusion

In view of the foregoing, the claims pending in the application comply with the requirements of 35 U.S.C. § 112 and patentably define over the applied art. A Notice of Allowance is, therefore, respectfully requested. If the Examiner has any questions or believes a telephone conference would expedite prosecution of this application, the Examiner is encouraged to call the undersigned at (206) 359-6488.

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Respectfully submitted,
Perkins Coie LLP



Chun M. Ng
Registration No. 36,878

Correspondence Address:

Customer No. 25096
Perkins Coie LLP
P.O. Box 1247
Seattle, Washington 98111-1247
(206) 359-6488